

Cosmetic Science: An Overview

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ABSTRACT

Cosmetics are defined as “items with mild action on the human body for the purpose of cleaning, beautifying, adding to the attractiveness, altering the appearance, or keeping or promoting the skin or hair in good condition” while functional cosmetics, even if falling under the cosmetic definition, are designated as “items fulfilling specific actions like skin whitening, minimizing the appearance of lines in the face and body, protecting from the sun and sun tanning”.

KEYWORDS: Skin Cosmetic, Hair Cosmetic, Face Cosmetic, Eye Cosmetic, Lip Decorators & Cares, Nail Cosmetic.

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INTRODUCTION

Cosmetic is a Greek word which means to ‘adorn’ (addition of something decorative to a person or a thing). It may be defined as a substance which comes in contact with various parts of the human body like skin, hair, nail, lips, teeth, and mucous membranes etc. Cosmetic substances help in improving or changing the outward show of the body and also masks the odor of the body. It protects the skin and keeps it in good condition. In general, cosmetics are external preparations which are applied on the external parts the body.

Even in earlier days, men and women used to decorate their bodies for improvement of appearance. Men used leaves of vegetables and parts of animals whereas women use to wear colored stones and flowers round their neck and wrist.

SKIN COSMETIC

MOISTURIZERS:

Skin Care Products (Creams, Lotions, Powders and sprays)

Moisturizers are products that are intended to hydrate the skin. Another related topic of interest includes parabens. They also increase the water content of the

skin, giving it a smooth appearance. They also provide a barrier against the loss of water from the skin. Moisturizers contain special ingredients that help to replace the oils contained in the skin or to protect against the loss of moisture from the skin.

The safety of Moisturizers is established by selection of ingredients that are safe and suitable for this purpose. In addition, Moisturizers are assessed for their potential to cause skin irritation or cause allergic reactions. Product safety is also established through strict adherence to the principles of Quality Assurance and Good Manufacturing Practices.

Foot Powders and Sprays

Foot Powders and Sprays are products applied to the feet to reduce the odour caused by the bacterial breakdown of perspiration. Foot Powders and Sprays work either by using fragrance to cover up malodor or by absorbing perspiration that leads to formation of malodor.

The safety of Foot Powders and Sprays is established by selection of ingredients that are safe and suitable for this purpose. In addition, Foot Powders and Sprays are assessed for their potential to cause skin irritation

or cause allergic reactions. Product safety is also established through strict adherence to the principles of Quality Assurance and Good Manufacturing Practices.

Practices that enhance Appearance that include the use of cosmetics, botulinum, exfoliation, fillers, lasers, resurfacing, microdermabrasion peels, retinol therapy and ultrasonic skin treatment.



Face and Neck Creams/Lotion:

Face and Neck Creams/Lotions are products that are intended to moisturize and soften the face and neck. They are often semi-solid emulsions of oil and water. Face and Neck Creams/Lotions contain special ingredients that help to replace the oils contained in the skin or to protect against the loss of moisture from the skin.

The safety of Face and Neck Creams/Lotions is established by selection of ingredients that are safe and suitable for this purpose. In addition, Face and Neck Creams/Lotions are assessed for their potential to cause skin irritation or cause allergic reactions. Product safety is also established through strict adherence to the principles of Quality Assurance and Good Manufacturing Practices. This includes testing the compatibility of the product with packaging as well as shelf-life stability.

Cleansers:

Cleansers are products that are intended to clean the skin by removing dirt, oil, makeup, and dead skin cells. They contain special ingredients that help to unclog pores and to prevent skin conditions such as acne. They may also contain moisturizers to prevent the skin from drying out. Cleansers leave the skin feeling clean and fresh.

The safety of Cleansers is established by selection of ingredients that are safe and suitable for this purpose. In addition, Cleansers are assessed for their potential to cause skin irritation or cause allergic reactions.

Product safety is also established through strict adherence to the principles of Quality Assurance and Good Manufacturing Practices.

SKIN CARE

Skin care is the range of practices that support skin integrity, enhance its appearance and relieve skin conditions. They can include nutrition, avoidance of excessive sun exposure and appropriate use of emollients.

A girl applying cream on face

HAIR COSMETIC

Hair care products:

Hair Care products are those that help to control the properties and behavior of the hair so that it can be maintained in a controlled and desirable manner. This can include hair conditioners, hair sprays, hair straighteners and relaxers, permanent waves, shampoos, rinses, tonics and dressings.

For ingredient and safety information on hair care products, use the links below.

Shampoos and Rinses:

Shampoos and Rinses are products that are intended to cleanse the hair.

Rinses are intended to help condition the hair after shampooing. Some formulations are Shampoos and Rinses in the same product. The safety of these products is ensured through the careful selection of ingredients that are safe for these products.

Manufacturers conduct extensive safety tests to ensure that these products are safe. Among the tests conducted are those to ensure that the products are not irritating or that they cause allergic reactions. As with all products, it is very important to read and follow the directions for use that are on the product. The FDA recommends that Hair Shampoos and Rinses be assessed to determine the type and degree of eye irritation that may occur, and to assure that products are not contaminated and will not become contaminated during normal use.

Tonics and Dressings:

Tonics and Dressings are products that are intended facilitate combing and styling of the hair. They can be applied directly to the hair or by application to the brush or comb. The safety of these products is ensured through the careful selection of ingredients that are safe for these products. Manufacturers conduct extensive safety tests to ensure that these products are safe. Among the tests conducted, are those to ensure

that the products are not irritating or that they do not cause allergic reactions.

As with all products, it is very important to read and follow the directions for use that are on the product. Finally, the safety of products is monitored in the market-place through reports of consumer comments and complaints.

Companies include a phone number on their products where comments or complaints may be reported.

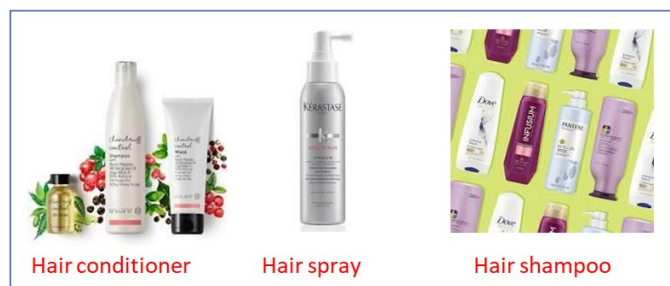
Hair Sprays:

Hair spray products are quick-drying liquids sprayed on the hair to keep it in place. They contain ingredients that stick to the hair and hold it in place for a short period of time. The safety of Hair Sprays is established by selection of ingredients that are safe and suitable for this purpose. In addition, Hair Sprays are assessed for their potential to cause scalp and eye irritation. Product safety is also established through strict adherence to the principles of Quality Assurance and Good Manufacturing Practices. This includes testing the compatibility of the product with packaging as well as shelf-life stability. The FDA does not permit the use of vinyl chloride or methylene chloride in aerosol products, including Hair Sprays.

Hair Conditioners:

Hair Conditioners are used to make hair smooth and silky. They help by replacing materials, such as natural oils, lost during washing. The safety of Hair Conditioners is established by selection of ingredients that are safe and suitable for this purpose. In addition, Hair Conditioner Products are assessed for their potential to cause scalp and eye irritation. Product safety is also ensured through strict adherence to the principles of Quality Assurance and Good Manufacturing Practices. This includes testing the compatibility of the product with packaging as well as shelf-life stability.

The FDA recommends that Hair Conditioners be assessed to determine the type and degree of eye irritation that may occur, and to assure that products are not contaminated and will not become contaminated during normal use.

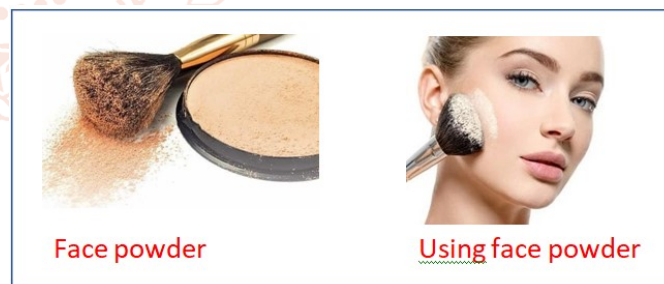


FACE COSMETIC:

Facial cosmetics are a common part of the daily life in many cultures since Ancient Egypt [1] and change the perception of a face. The impact of facial cosmetics on the perception of a face is exemplified in Figure 1. Research for evaluating the impact of facial cosmetics is limited, mainly because of the lack of a public database that contains multiple images with and without applied facial cosmetics for a significant panel of women. In [2], the authors develop a system detecting the 18 most suitable makeups for a given human face.

Face powder:

Face powder is a cosmetic product applied to the face to serve different functions, typically to beautify the face. Originating from ancient Egypt, face powder has had different social uses across cultures and in modern times, it is typically used to set makeup, brighten the skin and contour the face. Face powders generally come in two main types. One of which is loose powder, which is used to assist with oily skin in absorbing excess moisture and mattifying the face to reduce shininess. The other is compressed powder which conceals blemishes and maximizes coverage. The use of face powder has contributed to beauty standards throughout history. In ancient Europe and Asia, a whitened face with a smooth complexion signaled a woman of high status. The prevalence of this trend was carried throughout the Crusades and Medieval area. During this time, women used harmful ingredients as face powder including bleaches, lead and lye.



EYE MAKE UP:

Eye makeup is a type of cosmetics which aims to make the eyes look noticeable and attractive. It is mostly used by females, and by stage performers of all types. Eye makeup is an important part of the fashion and cosmetic industries.

The idea can be taken much further. The colour of the eye can be altered by using contact lenses. Glitter and other *appliqués* can be stuck on near the eye. Fake eyelashes or eyelash extensions are possible.

Subtle and effective eye makeup, chosen and blended with her skin and eye colour. An eye pencil or liner on her eyebrows, two shades of eye shadow on the

eyelids, dark brown or black mascara on the lashes, eye liner on her bottom lid and corner of upper lid.



Mascara:

Mascara is a cosmetic used to darken, colour, thicken, lengthen, or define eyelashes. Historically, it was (and still is) usually black, but now it also comes in many colours and tints. Mascara comes in three forms: liquid, cake, and cream.



Full – on mascara creates a more dramatic effect

It is available in tubes with wand applicators. Ingredients in mascara include water, wax thickeners, film-formers, and preservatives.

Eye shadow:

A powder eye shadow palette with brown shades for normal daywear; the two centre colours are sparkly while the silver and white shades are for creating shadows and highlights.

Note eyebrow plucking; simple black eye liner; good choice of lipstick colour; feminine lacey neckline.

Eye shadow is a cosmetic that is applied on the eyelids and under the eyebrows. The average distance between eyelashes and eyebrows is twice as big in women as in men. Pale eye shadow visually enlarges this area and has a feminising effect.

Eye shadow can be applied in a variety of ways depending upon the desired look. Typically

application is done using sponges, fingers, and/or brushes. The most important aspect of applying eye shadow, and makeup in general, is blending well.



A more vivid and adventurous style. Black mascara and eye liner, and two or three-coloured eye shadow. Notice the carefully graded shifts in colour.

Eye liner:

Eye liner is a cosmetic used to define the eyes. It is applied around the contours of the eye, along and above the edges of the eyelids where the eyelashes grow. Often applied just on the outer half of the eye.

LIP DECORATORS & CARES:

Lipstick: is a cosmetic that applies colour, texture, and protection to the lips.

Lipstick trends:

Dark red lipstick was one of the most popular shades throughout the 19th and 20th century, especially in the 1920s. Flappers wore lipstick to symbolize their independence. Lipstick was worn around the lips to form a "Cupid's bow," inspired by actress Clara Bow. At that time, it was acceptable to apply lipstick in public and during lunch, but never at dinner.

By the 1950s, movie actresses **Marilyn Monroe** and **Elizabeth Taylor** helped bring back dark red lips. A 1951 survey revealed that two-thirds of teenage girls wore lipstick.



Ingredients:

Lipstick contains wax, oils, antioxidants, and emollients. Wax provides the structure to the solid lipstick. Lipsticks may be made from several waxes such as beeswax, ozokerite and candelilla wax. Because of its high melting point, carnauba wax is a key ingredient in terms of strengthening the lipstick. Various oils and fats are used in lipsticks, such as olive oil, mineral oil, cocoa butter, lanolin, and petrolatum.

Lipsticks get their colours from a variety of pigments and lake dyes including, but not limited to bromo acid, D&C Red No. 21, Calcium Lake such as D&C Red 7 and D&C Red 34, and D&C Orange No. 17.

Pink lipsticks are made by mixing white titanium dioxide and red shades. Both organic and inorganic pigments are employed.

Matte lipsticks contain more filling agents like silica but do not have many emollients. Creme lipsticks contain more waxes than oils. Sheer and long lasting lipsticks contain more oil, while long lasting lipsticks also contain silicone oil, which seals the colours to the wearer's lips. Glossy lipstick contains more oil to give a shiny finish to the lips.

NAIL COSMETICS:

Nail polish (also known as **nail varnish** or **nail enamel**) is a lacquer that can be applied to the human fingernail or toenails to decorate and protect the nail plates. The formula has been revised repeatedly to enhance its decorative effects and to suppress cracking or peeling. Nail polish consists of a mix of an organic polymer and several other components that give it colours and textures. Nail polishes come in all shades of colour and play a significant part in manicures or pedicures.

Ingredients:

Nail polish consists of a film-forming polymer dissolved in a volatile organic solvent. Typical is a solution of nitrocellulose in butyl acetate or ethyl acetate is common. This basic formulation is expanded to include the following:

- Plasticizers to yield non-brittle film. Dibutyl Pthalate and camphor are typical plasticizers.
- Dyes and pigments. Representative compounds include chromium oxide greens, chromium hydroxide, ferric ferrocyanide, stannic oxide, titanium dioxide, iron oxide, carmine, ultramarine, and manganese violet.
- Opalescent pigments. The glittery/shimmer look in the colour can be conferred by mica, bismuth oxychloride, natural pearls, and aluminium powder.

- Adhesive polymers ensure that the nitrocellulose adheres to the nail's surface. One modifier used is tosylamide-formaldehyde resin.
- Thickening agents are added to maintain the sparkling particles in suspension while in the bottle. A typical thickener is stearalkonium
- Ultraviolet stabilizers resist colour changes when the dry film is exposed to sunlight. A typical stabilizer is benzophenone-1.

Types:**Base coat:**

This type of nail polish is a clear, milky-coloured, or opaque pink polish formula that is used specifically before applying nail polish to the nail. Its purpose is to strengthen nails, restore moisture to the nail, and help polish adhere to the nail. It prevents staining and extends the lifespan of the manicure. Some base coats are marketed as "ridge fillers", and can create a smooth surface, de-emphasizing the ridges that can appear on unbuffered nails. Some base coats, called "peel off base coats", allow the user to peel off their nail polish without using a remover.

Top coat :

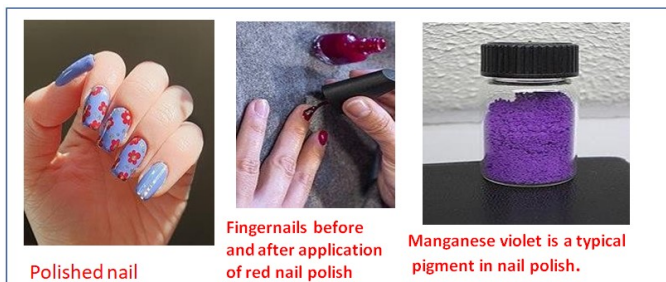
This type of nail polish is a clear coloured polish formula that is used specifically after applying nail polish to the nail. It forms a hardened barrier for the nail that can prevent chipping, scratching and peeling. Many topcoats are marketed as "quick-drying." Topcoats can help the underlying coloured polish dry quickly as well. It gives the polish a more finished and desired look and may help to keep the polish on longer. Manganese violet is a typical pigment in nail polish.

Gel: Gel polish is a long-lasting variety of nail polish made up of a type of methacrylate polymer. It is painted on the nail similar to traditional nail polish, but does not dry. Instead it is cured under an ultraviolet lamp or ultraviolet LED. While regular nail polish formulas typically last two to seven days without chipping, gel polish can last as long as two weeks with proper application and home care. Gel polish can be more difficult to remove than regular nail polish. It is usually removed by soaking the nails in pure acetone (the solvent used in most nail polish removers) for five to fifteen minutes, depending on the formula.

Matte:

Matte polish is like regular polish, but has a purposely dull finish rather than a shine. It can be purchased as a regular base coat in ranges of different colours. Matte nail polish can also be found in a topcoat. Matte topcoat is most useful for painting over any dry base colour, giving it a different appearance. The matte topcoat polish will dull the shine from a regular base

coat polish. Matte polish has become very popular through the years, particularly since it can be used in nail art applications, where designs can be created on the nail using the contrast of both shiny and matte surfaces.



Nail polish remover:

Nail polish remover is an organic solvent that may also include oils, scents, and colouring. Nail polish remover packages may include individual felt pads soaked in remover, a bottle of liquid remover used with a cotton ball or cotton pad, or a container filled with foam into which one inserts a finger and twists it until the polish comes off. Choosing a type of remover is determined by the user's preference, and often the price or quality of the remover.

The most common remover is acetone. Acetone can also remove artificial nails made of acrylic or cured gel.

An alternative nail polish remover is ethyl acetate, which often also contains isopropyl alcohol. Ethyl acetate is usually the original solvent for nail polish itself.

Acetonitrile has been used as a nail polish remover, but it is more toxic than the aforementioned options.



Nail polish remover

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